DOCUMENT RESUME

ED 021 798 24 SP 001 533

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SPECIAL INSTITUTE FOR TRAINING RESEARCH UTILIZATION SPECIALISTS FOR LOCAL HIGH SCHOOL SYSTEMS (JUNE 13 TO AUGUST 5, 1966). FINAL REPORT

Kentucky Research Foundation, Lexington.
Spons Agency- Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No- BR-6-1797
Pub Date 22 Sep 66
Grant- OEG-2-6-061797-1098
Note- 60p.
EDRS Price MF- $0.50 HC- $2.48
Descriptors- COURSE CONTENT, *EDUCATIONAL RESEARCH, *INSTITUTES (TRAINING PROGRAMS), MEASUREMENT, QUESTIONNAIRES, *RESEARCH METHODOLOGY, *SCHOOL PERSONNEL, STATISTICS
Identifiers- Kentucky, University of Kentucky

An 8-week summer institute was conducted at the University of Kentucky in 1966 to train 24 public school teachers and administrators as research utilization specialists at the county agent level. Utilized in the program were classes, field trips, and research consultation in 5 subject areas: statistics, measurement, experimental design, evaluation of research, and research writing. Rapport which developed quickly among all participants aided in overcoming several organizational difficulties resulting from late approval of the institute proposal. Generally, the group developed a remarkable degree of capability in educational research as a result of the program and their individual efforts. Analysis of questionnaire evaluations from participants and staff indicates that the institute was successful while some suggestions are offered for future programs: (1) more time should be given to conceptualizing research problems and analyzing them, less time given to statistics early in the program, and (2) more time should be given to discussing research methods and experimental design, less time devoted to statistical laboratory. About one half of this report consists of the evaluation questionnaires, statistical tables recording questionnaire results, outlines of course content, and information letters and application forms used to organize the institute. (JS)

BR-6-1797
PA-24

FINAL REPORT

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SPECIAL INSTITUTE FOR TRAINING RESEARCH UTILIZATION SPECIALISTS FOR LOCAL SCHOOL SYSTEMS

September 22, 1966

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

SP001533
ED021798

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SPECIAL INSTITUTE FOR TRAINING RESEARCH UTILIZATION SPECIALISTS FOR LOCAL SCHOOL SYSTEMS

OEG 2-6-061797-1098

PROGRAM DIRECTOR

Ivan L. Russell, Ph. D.

June 13 - August 5, 1966

The training program reported herein was conducted pursuant to a grant from the Office of Education, U. S. Department of Health, Education, and Welfare. Grantees undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment of the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

THE UNIVERSITY OF KENTUCKY RESEARCH FOUNDATION
LEXINGTON, KENTUCKY 40506

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ORIENTATION OF PROGRAM

Research in education, as in business and industry, must find its effectiveness in revised techniques, materials and processes at the local or production level. Technicians to utilize the research process and findings have been missing from most local school organizations while business and industry have benefited from the work of engineers, sales technologists and management experts. On the local scence in public education there is an emerging role which the American Educational Research Association is recognizing as a research utilization specialist at the county agent level. A training program for preparing personnel to meet the role demands of such a position was conducted at the University of Kentucky during the period June 13, to August 5, 1966.

The participant group consisted of twenty-one males and three females ranging in age from twenty-three to fifty-five years. The median age was thirty-seven years. Nineteen of twenty-four possessed the master's degree and three others expected to complete this degree with credit achieved in the institute. Because the role for which training was offered is an emerging position in local school systems, participants in the institute came from several position titles. Principals and Assistant Principals made up the largest group (15). Only one person entered the institute from the position of School Superintendent and only one came with the title Director of Federal Programs. Four participants were classroom teachers who had been assigned additional duties in the preparation and/or evaluation of projects under Title I of Public Law 89-10. One participant was a supervisor of instruction, one a director of pupil personnel, and another was a guidance counselor.

This institute program was predicated upon fourteen objectives stated in behavioral terms. Role behaviors for research utilization specialist at the county agent level have been described in only very general terms in the literature of educational research. Therefore it was necessary to use a priori assignment of certain behaviors to arrive at the following objectives for this training program:

1. To be able to analyze a problem encountered in a local school system in sufficient and appropriate detail to provide researchable or developmental elements.

2. To be able to designate the significant variables to be measured and controlled or predicted in the research design.

3. To be able to locate and evaluate supporting or contributing past research findings in terms of their practical rather than theoretical contributions.

4. To be able to select a research design of no greater complexity than to involve analysis of variance, i.e., randomized-groups design, randomized-blocks design, factorial design.

5. To be able to recognize and interpret "constant errors" and "random errors" resulting from sampling and observational techniques, and to select populations and techniques which will minimize these errors.

6. To be able to select from among the available standardized tests of achievement, intelligence, interest, aptitude, and objective personality instruments those most appropriate for a given school population and variable. Also, to be able to design a data-gathering device such as a questionnaire which is reliable and efficient.

7. To be able to select and use statistical techniques of no greater difficulty than analysis of variance and product-moment correlation. Proficiency will not include ability to derive the theoretical origins of the mathematics involved in these methods.

8. To be able to interpret statistical results into conclusions which relate to variables easily identified

within the local school situation.

9. To be able to explain in writing the method, data, conclusions and implications of research in a concrete, practical and direct rather than abstract and theoretical manner.

10. To be able to locate and interpret research findings which contribute directly (do not call for translation) to local school situation.

11. To be able to derive the maximum applicable knowledge from data routinely accumulated by the local school within the limits of his capability defined by levels of competency in items 4., 5., 6., 7., 8., and 11., above.

12. To be able to foresee and plan for the accumulation of useful information in the routine administrative and pupil inventory processes within the limits of competency defined in items 4., 5., 6., 7., 8., and 11., above.

13. To be sufficiently interested in research to make overt gestures directed toward influencing others to a concern for the scientific approach to educational problem solving.

14. To be able to utilize such techniques as "discussion groups," "panels," "self-evaluations," and "role-playing" as well as traditional lecture-discussion techniques for the communication of research methodology and findings.

These behavioral objectives are further crystalized in the goals for the preparation of participants:

1. To conduct pilot testing of new practices and materials.

2. To make optimum use of existing data to interpret

the school program utilizing research methodology.

3. To adapt and interpret available knowledge of educational practices and practitioners.

DESCRIPTION OF THE PROGRAM

Educational research methods and tools have been a traditional element in graduate training for decades. But in most instances the content has been presented as courses rather clearly differentiated and too often apart from practical applications. The institute format provided an opportunity to integrate the material into a whole which was designed to be comprehensible for students with only a meager preparation in the subject. As the program content is presented here the integrative aspects may not easily be discernable. Nevertheless, maximum effort was made by the staff to accomplish the inter-relatedness of content and the interaction of tools. Numerous formal and informal staff conferences were held, staff members attended sessions together, team-teaching methods were employed, references were employed, references were made from one content area to another, and examples were used in successive sessions. Participants consistently commented upon the careful integration of the content among instructors and consultants. There were no occasions of disagreement among staff members regarding an element of content or method of presentation.

For purposes of description and evaluation the program is viewed as having nine components. Brief descriptions of each of these elements are presented in the following paragraphs and detailed outlines are shown as Appendix A.

1. Statistics

Content drawn from the area of statistics ranged from elementary description through the simplest techniques of statistical inference. Participants could be described as having no preparation in statistics prior to this experience and it was necessary to move carefully and thoroughly from one topic to the next. Students were given individual help and small remedial groups were formed to assure everyone the opportunity for meaningful instruction. In the first two-week period two hours per day were given to lecture, discussion and demonstration relating to topics in statistics. Students solved selected problems and their work was corrected for immediate feedback to them.

2. Measurement

Ten of the twenty-four participants had received credit for a graduate course in educational tests and measurement. Experience revealed that this fact did not create the wide range of preparation which the staff anticipated, and it was not necessary to provide two levels of content and instruction. Instead the staff attempted to select from the large body of theory, techniques and devices in educational measurement a content containing the essentials for a research technician. Added to this foundation content was a description and brief encounter with several approaches to the quantification of observable behavior. Topics which received concentrated treatment were: types and characteristics of scales; criteria for an acceptable measurement device or instrument; types of scores - their applications and limitations; constructing items and tests; achievement measures; measures of intellectual function; aptitude measures; personality and behvaioral measures; attempts to quantify teacher-behavior; the Q-sort technique; the Osgood sematic differential and profile analysis technique.

3. Research Methods

Content presented under this broad and non-specific title included an array of topics having as their single common quality a relationship with the research process. Beginning with an identification of the components of the research process and continuing with study of each element this area of content became the best opportunity for integration of learning in the program.

Content can be very briefly described by the following statement of the research process:

Identifying, delineating and describing a problem
Developing hypotheses
Collecting, evaluating, and synthesizing pertinent previous research
Designing a structure for the specific study
Analyzing accumulated data
Deriving conclusions and implications

4. Experimental Design

While other research designs were covered under the topic of Research Methods, experimental designs were given sufficient time and emphasis to be classified separately. After a detailed analysis of problems associated with the control of variables and conditions each of the popular experimental designs were examined. In group discussion students applied each of the designs to an educational research situation noting the adequacy of the particular design for controlling circumstances likely to be encountered. Statistical treatments within the repertory of the students were applied to the designs for which they were suitable to illustrate uses and associate meanings.

5. Evaluation of Research

Certain subject matter and activities in the program were directed to the improvement of students' abilities to evaluate the research of others. Knowledge of appropriate procedures and understanding of meanings within the content relating to the research process conveyed to students a context for evaluating research reports. A set of guidelines was examined and applied in the evaluation of research reports selected by each student.

6. Statistics Laboratory

One hour on alternate days during the first six weeks of the institute was devoted to learning the operation of desk calculators and to the development of speed and accuracy with them. Problems selected for practice were related to educational research. Raw data were treated to describe populations and to test hypotheses about treatment effects. Students completed several exercises drawn from probability theory using dice, poker chips with recorded test scores on each side and normally distributed color frequencies, playing cards, a table of random numbers, and other devices.

7. Research Writing

Utilizing the content of selected topics of the program students produced written materials for criticism and feedback. Each

student prepared a written statement of the problem component of a study. To assure equal difficulty and to provide a common base for criticism a research problem was identified by the group and analyzed individually for reporting. Products of this experience were evaluated on the following criteria:

Adequacy of handling of each component of the problem
Vocabulary usage and definition of terms
Handling of grammar and punctuation
Handling of references

Students developed hypotheses relating to the specific problem. These hypotheses were written on the blackboard, discussed by the students who developed them, and criticised by the group.

8. Field Trips

After hearing a one-hour lecture on the characteristics and uses of computers in educational research the participants were given a one-hour tour of the University Computer Center. Content of the lecture included: an introduction to binary arithmatic with applications to machine technology; components of a computing system and their interaction; entering and controlling the computer; brief introduction to systems logic. The tour provided an opportunity to witness the complete processing of data from raw form to print-out with brief descriptions of each step in the operation.

A second field trip consumed one-half day. The group traveled by bus to Spindletop Research, Inc. located five miles northwest of Lexington, Kentucky. Spindletop Research is a private organization with a professional staff of 64 and a technical and office support staff of 44 employees. Students were given a half-hour briefing which introduced them to the organization and to the problems peculiar to seeking funds by preparing research proposals. A guided tour of their facilities provided an opportunity to observe research being done by metalurgists, chemists, bio-physicists, communications experts, sociologists, and psychologists. An interdisciplinary approach is used to conduct research in communications, comparative effectiveness, economic development, environmental sciences, and industrial sciences.

9. Consultants

Content presented by the visiting researchers tended to be general and non-task oriented. Interaction between the visitors and participants was evident very soon after initial contact lowered the barriers to communication. Techniques involving inductive teaching were effectively demonstrated by each of the consultants. Perhaps their most significant contribution to the institute experience was to provide an occasion for students to express ideas employing language, concepts and ideas drawn from the content of research methodology. Unfortunately their visits came too early in the program for these opportunities to be of maximum benefit.

SCHEDULE OF INSTRUCTION

Hours and Location	First and Second Weeks	Third and Fourth Weeks	Fifth and Sixth Weeks	Seventh and Eighth Weeks
8:10- 9:10 Room 442 Commerce Building	Statistics	Statistics	Statistics	Measurement
9:20-10:20 Room 331 Commerce Building	Research Methods	Research Methods	Experimental Designs	Research Evaluation Research Writing
10:30-11:30 Room 208 Commerce Building	Scheduled Study	Scheduled Study	Scheduled Study	Scheduled Study
11:40-12:40 Room 442 Commerce Building	Statistics	Measurement	Measurement	Measurement
12:40- 1:40	Lunch	Lunch	Lunch	Lunch
1:40- 2:40* Lab-Room 301 Small Groups (No Room Assigned)	Statistics Lab Small Group Group A Discussion Group B	Same Same	Same Same	Measurement Lab Small Group Group A Discussion Group B
2:50- 3:50 (No Room Assigned)	Scheduled Study	Scheduled Study	Scheduled Study	Scheduled Study

* Alternate days were given to statistics laboratory and small group discussions.

An institute format provides for the flexible schedule necessary for completing irregular blocks of content and for integrating learnings across subject matter lines. However, this flexibility complicates the description of the institute schedule of instruction. While the time intervals suggested for each topic are reasonably accurate they were not followed when student interests or needs required more or less than these time allocations.

Irregular events such as visits by consultants and field trips were fitted into the time schedule as necessary. Consultants attended each of the instructional periods during their visits and they were actively involved with the group. Their approaches ranged from assuming full responsibility for the content of the program to serving as a specialist in discussion groups. Break-times and study periods provided each participant the opportunity to interact with consultants and staff members on a personal and informal basis. Field trips were taken during periods of times which did not subtract from the usual instruction and discussion.

EVALUATION OF THE PROGRAM

From the vantage point of today many of the difficulties encountered in bringing this institute from an idea to a reality seem to be lost in the wholeness of the experience. While the character of the institute was abundantly influenced by solutions to problems each successive event lost a portion of its initial impact and significance. A few problems occasioned by the chain of events leading to late approval of the proposal, could not be overcome and their influence was constantly evident as the institute experience unfolded. It is in the attempt to evaluate that this influence becomes problematic. Details, particularly troublesome ones, often receive unjustified attention when it is the configuration which should be evaluated. These troublesome details are cited in retrospect and with reluctance while the totality of the institute's impact upon participants and staff members is emphasized.

On December 6, 1965 the proposal for a Special Institute for Training Research Utilization Specialist for Local School Systems was transmitted from the University of Kentucky Research Foundation. For a period of two months this proposal lay unnoticed in the Receiving Department of the Bureau of Research, Office of Education. On April 21, 1966 notice of approval of the proposal was received in the office of the University of Kentucky Research Foundation. Then followed a period of more than six weeks before signing of the contract on June 16, 1966. The following conditions were predisposed by this sequence of events:

1. Dr. Ernest McDaniel who was to have been a staff member accepted other employment for the summer session. It became a serious problem to find a replacement for him.

2. A secretary to prepare materials and assist in recruiting participants could not be employed until May 26, 1966. Other secretarial assistance was scarce and unenthusiastic.

3. It was not possible to secure consultants at appropriate times during the institute period because they had scheduled their

time for other activities.

4. A heavy summer schedule had consumed all of the desirable space at the University of Kentucky making it necessary for institute participants to move from room to room often finding another group using the assigned quarters.

5. Requirements for admission to the graduate school of the University of Kentucky made it impossible for late applicants to receive admission except on a special temporary basis.

6. It was not possible to give the institute publicity through news media because of a directive contained in the letter of notification of approval. "Please do not release information to the public concerning the possible Federal support of the project until the contract has been signed by your contracting officer and the contracting officer for the Office of Education."

7. There was not sufficient time to publicize the institute, receive applications, screen applications, notify applicants who were approved, and select replacements for applicants who declined appointments.

Staff members and participants attempted without success to evaluate the influence of these several problems on outcomes of the institute. No doubt, at the time of occurrence each problem was significant, but human qualities have a way of absorbing inconveniences and functioning to compensate for imbalances which might result. There is reason to believe that the particular set of circumstances which preceeded the institute and continued to emerge in the form of new problems served to create a strong force for success. Among the conditions which lead to this observation are these:

1. A group feeling of closeness and rapport developed very early among participants. This is a usual pattern in the institute approach to training, but in this group it developed more rapidly than staff members would have predicted.

2. Staff members openly shared the difficulties with the trainee group and as a result became more involved with

student problems and needs than is ordinary.

3. The amount of work accomplished by staff members and participants was extraordinary which indicates a personal committment on the part of each member to contribute to a successful experience.

4. Staff members sought every opportunity to be of assistance to each other. Neither the close of a session, the end of a day, nor the termination of the program brought these offers to an end.

It is sufficient to report that circumstances which created hardship concurrently stimulated human resources toward successful solutions.

Cooperation and assistance certainly was not limited to the immediate staff and to the trainee group. Persons in the several offices of the University of Kentucky were ready to lend their assistance within the limitations of reality. The University of Kentucky Research Foundation arranged to provide postage for the mailing of announcements and applications when it was not possible to recover this money through the grant because of the long delay in completing the contract and the establishment of an effective date for reimbursement of funds. Secretarial time was given by several departmental secretaries. Room assignments were rearranged by the very cooperative summer school staff. The College of Commerce shared its calculators and provided keys to their statistics laboratories. Office space was provided by the Bureau of School Services in their Cooperative Testing Services quarters. The institute director and staff are indebted to the fine people who made these arrangements at the last minute and under conditions which would have made it easy and reasonable for them to have refused.

Evaluation of the Objective Component

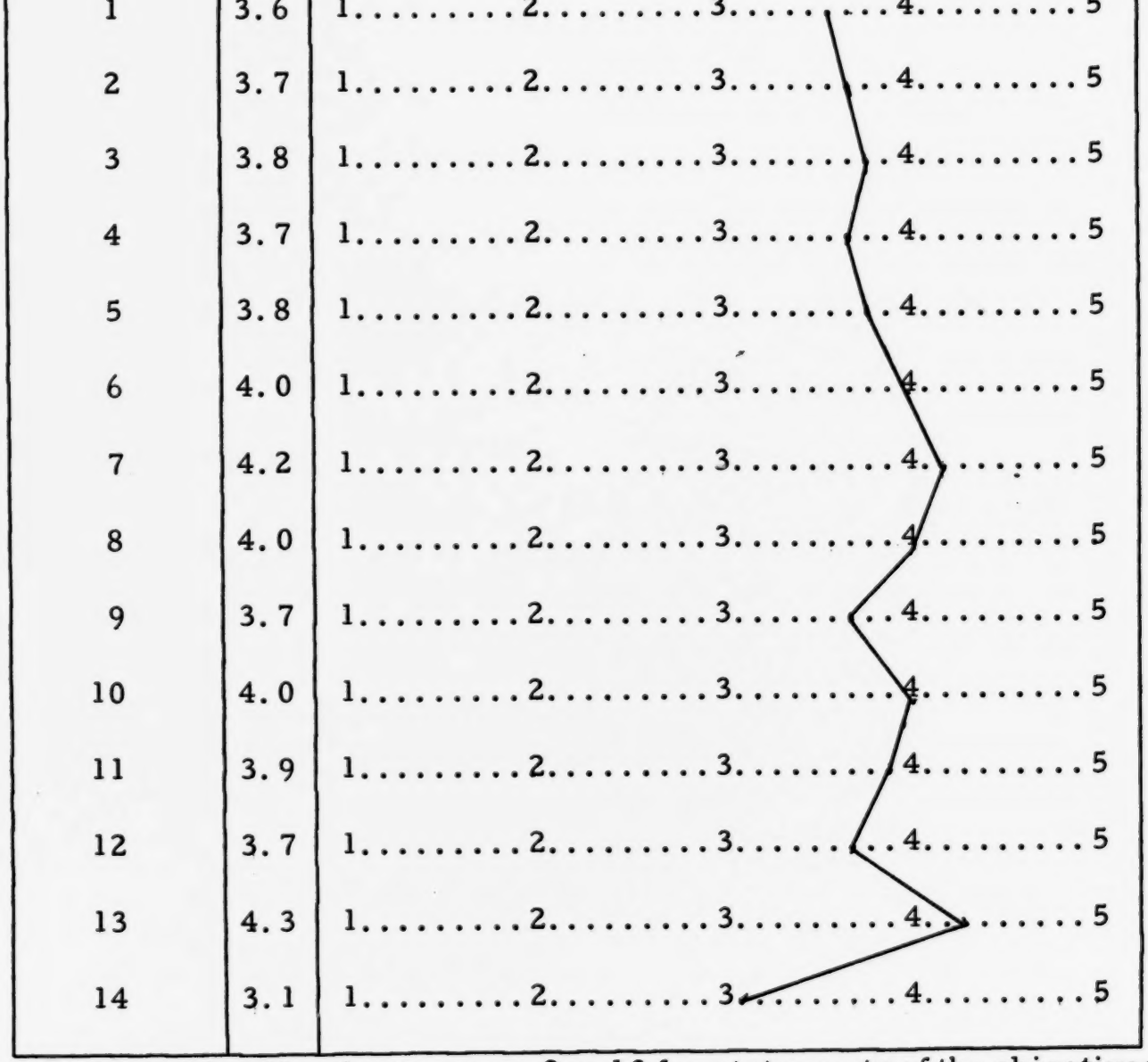
Fourteen objectives phrased as achievement goals for trainees were the purposes for which this program was offered. There are no data for evaluating the validity of these objectives as necessary levels of performance for local utilizers of research

tools and information. But it is possible to estimate the level of accomplishment of each objective attributable to the program of the institute. Trainees completed a questionnaire on the final day of the program. One element called for an estimate of the level of group accomplishment of each objective. Results of this item appear in the following table:

Table 1

Profile of Mean Ratings
Assigned to Accomplishment Levels of Institute Objectives

Objectives*	Mean Accomplishment Rating	Un-achieved ... Moderate ... Fully Achieved
1	3.6	1.....2.....3.....4.....5
2	3.7	1.....2.....3.....4.....5
3	3.8	1.....2.....3.....4.....5
4	3.7	1.....2.....3.....4.....5
5	3.8	1.....2.....3.....4.....5
6	4.0	1.....2.....3.....4.....5
7	4.2	1.....2.....3.....4.....5
8	4.0	1.....2.....3.....4.....5
9	3.7	1.....2.....3.....4.....5
10	4.0	1.....2.....3.....4.....5
11	3.9	1.....2.....3.....4.....5
12	3.7	1.....2.....3.....4.....5
13	4.3	1.....2.....3.....4.....5
14	3.1	1.....2.....3.....4.....5



* Readers should refer to pages 2 and 3 for statements of the objectives.

Student ratings indicate that the objectives were more than moderately achieved by the institute experience. Highest levels of achievement were noted in:

13. To be sufficiently interested in research to make overt gestures directed toward influencing others to a concern for the scientific approach to educational problem solving.

7. To be able to select and use statistical techniques of no greater difficulty than analysis of variance and product-moment correlation.

Lowest levels of accomplishment were assigned to the objectives:

14. To be able to utilize such techniques as "discussion groups", "panels", "self-evaluation", and "role-playing" as well as traditional "lecture-discussion" techniques for the communication of research methodology and findings.

1. To be able to analyze a problem encountered in a local school system in sufficient and appropriate detail to provide researchable or developmental elements.

Analysis and evaluation of the program of the institute will contribute to an understanding of possible reasons for the ratings of certain objectives to be high and others somewhat lower.

Staff members agree with students in every aspect of their estimate. Faculty opinion is well summarized by Dr. James Eaves' evaluation comment. "Student growth was actually more than one could demand though still short of our aspirations for them." His evaluation of the accomplishment of goals having statistical content is reported in the following paragraph:

"Group members were mature and, in a way, almost homogeneous in their previous work in statistics. While many had a meager knowledge of descriptive aspects of the subject, none had gained a usable knowledge of statistics. A few had an acceptable

mathematics preparation, but most were sorely lacking in this discipline. Not one spoke the language and none were willing to talk about a population in relevant statistical terminology. They preferred to add the scores up or, better still, to watch someone do this, get an answer, and quit. They were all horrified at the thought of interpreting results. The presentation of any new topic brought on more anguish, followed by confusion, then study and determination, followed by acceptance; and all of this succeeded by a feeling of acquaintanceship, of usefulness, of application, understanding, and often a surprising degree of mastery. At first their response was slow and accompanied by a rebellious attitude. Their surrencer to scholarly study brought purpose and direction to their fitful struggles and movement became evident. Once the students gained understanding and confidence they moved swiftly, with comprehension, toward mastery of the concepts. Even now these participants are not competent research statisticians but they have been subjected to a great deal of material pertinent to research requiring statistical methods and they know their limitations as well as their competencies. The overall development of this group has been phenomenal. They possess much more of a professional aire as well as a mature respect for their own research prospects. The school systems to which they return will profit from their determined efforts in a difficult area of study."

Dr. John Anglin, in his evaluation statement said, "The participants were determined in their efforts and diligent in their quest for understanding of the role of measurement in the research activites of local schools. Although the training and experience of individuals was varied, the flexible nature of the institute program permitted a notable growth for each member. By performance and expression participants have exhibited a positive attitude toward research and a significant gain in their understanding of the research process."

Evaluation of the Program by Participants

Realizing that instructors may possess superior knowledge of research methodology and experience still it is necessary to turn to the evaluations by students to assess the immediate impact of the institute program. An aspect of the evaluation

questionnaire requested students to make judgments concerning the program. First they reacted to an item relating to the amount of time given to each of the nine elements of program described in preceeding pages. The item and directions of responding are contained in the questionnaire, Appendix B. Results of participants' judgments appear in the following table:

Table 2

Frequencies of Participants' Judgments Concerning Appropriate Time Allocations For Subjects and Activities

Topic or Activity	Time Allottment Should be		
	Increased	Retained	Decreased
Statistics	1	11	12
Measurement	4	20	
Research Methods	7	17	
Experimental Design	13	11	
Research Evaluation	13	11	
Research Writing	19	5	
Statistics Lab	2	17	5
Field Trips	4	19	1
Consultants	4	13	7

Table 2 contains information very important to this evaluation. Disagreement regarding the appropriateness of time allocations is apparent. Examination of the suggested percents of time

increase or decrease provides more information and analysis of student response interactions between program elements reveals substantive differences. These findings are discussed in the following paragraphs.

The group was about equally divided in their judgments concerning statistics. Perhaps most significant is the suggestion by one-half the group that the time allotted to this topic be decreased. Of these twelve who indicated this opinion, four also suggested a decrease in statistics laboratory time. In the first two-week period when statistics consumed two hours per day and the laboratory another hour anxieties and hostilities were quite evident. Staff members have estimated that one-half of the group were severely disturbed by frustrations resulting from failure to comprehend matters in statistics. Questionnaires were kept anonymous and it is not possible to know which participants made a particular suggestion; however, it is reasonable to estimate that the anxious students suggested less time for statistics. The laboratory provided an opportunity for students to gain assistance in problem solving and further instruction which may account for the fact that eight students suggesting a decrease in statistics suggested that laboratory time was appropriate. However, suggestions that laboratory time should be increased did not come from this group. Because of the heavy concentration of time for statistics in the early phase of the program it cannot now be determined whether this factor or a general desire to deemphasize the topic caused this reaction among the students. Another element possibly active in the outcome was the instructor's concern that students understand statistical concepts as well as be able to solve problems. A look at the ratings given to goal achievement by the group suggesting a decrease in statistics reveals an interesting relationship. While making this suggestion they rate the objective pertaining to the appropriate selection and application of statistical techniques, as having been realized at a high level (4.4). An interpretation which seems to fit this outcome and the observations of the staff is that although the experience was painful it contributed to the successful attainment of an objective which might not have been reached with less time and emphasis.

Students were in general agreement that time allotted for

measurement was appropriate but it was suggested by four persons that the time should be increased by 25 percent. Three of these four were in the group suggesting a decrease in time devoted to statistics.

A sizeable group (7) suggested an increase of 25 to 75 percent in the time given to the topic identified as research methods. Only two of these seven persons came from the group suggesting a decrease in statistics. One interpretation of the suggestion to increase time allotted to this rather general content is that it related to problem identification and analysis which was rated as less fully accomplished than most of the other objectives of the program. A weakness of the group as they were assessed by staff members and consultants was evidenced in their inability to conceptualize educational problems in terms of possible causes and effects. The staff generally agreed that this weakness sprung from a lack of preparation in the sciences of human behavior. Another weakness of the participants as a group appeared in their handling of logic. It was often necessary to give extended time to drawing out relationships among variables and the deduction of possible outcomes of given actions. Based upon this interaction of the rating of goal accomplishments with judgments of time allottments suggestions for more time seem reasonable.

Experimental design as a topic brought forth a division of opinion between increasing its time allottment by 25 percent and leaving it constant. Since over half of the group (13) suggested an increase further analysis seems to be indicated. This group assigned a value of 3.4 to the level of accomplishment of the objective which relates to the ability to select a research design; whereas, the group indicating that the time was adequate rated this objective at a 4.0 level. It is reasonable, with this relationship established, to assume that those who suggested more time felt that such an increase might bring closer the achievement of this goal. Since the same instructor presented the content of research methods and experimental design it is important to note the strong interaction between these two topics. Six of the seven who suggested increased time for research methods came from the group suggesting increased time for experimental design. Looking further it is evident that the two

additional topics presented by this instructor, research evaluation and research writing, were given less time than most of the participants felt they needed. Since the combined content of these four areas was given only one hour per day the judgments cited here are likely to reflect justifiable criticism of the time allottment. Additional evidence supporting this interpretation is cited in the analysis of observed relationships between accomplishment of objectives and each program element.

It is important that seven participants felt that the time given to consultants should have been decreased by 25 to 50 percent. Since the amount of time for consultants and the schedules of their visits were determined by their availability this observation may reflect upon the preparation of the participants to receive and interact with the consultants. General comments made by the participants, group behavior, and observations of staff members all lead to the evaluation that each consultant contributed significantly and favorably to the institute program.

Students were generally pleased with the time given to field trips although a small number felt there was not enough time. Data are not available to determine whether these four would suggest more trips or more time for the trips which were taken.

Another element of the questionnaire requested that a rating ranging from 1 (little or no contribution to the objective) to 5 (the major contributor to the objective) be assigned to each of the fourteen objectives. Table 3 shows the mean rating assigned to each program component and each objective.

Table 3

Participants' Mean Ratings Assigned Each Program Component

Program Components	Objectives													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Statistics	2.9	2.4	2.1	2.9	4.2	2.4	3.7	3.3	2.4	1.9	3.5	2.6	3.2	1.8
Measure-ment	3.0	3.0	2.7	2.9	3.3	4.6	3.7	3.2	3.2	3.0	2.8	4.0	3.5	3.7
Research Methods	4.0	3.9	4.1	3.7	3.5	3.4	3.5	3.7	4.3	3.8	3.6	4.0	4.4	3.6
Experimen-tal Design	3.4	4.0	3.5	4.1	3.2	3.1	2.9	3.3	3.6	3.3	3.3	3.6	4.0	3.1
Research Evaluation	2.9	2.9	3.3	2.9	2.6	2.9	2.4	3.0	3.1	3.9	3.2	3.0	3.5	2.7
Research Writing	2.3	2.5	2.8	2.4	2.1	1.8	1.8	2.5	2.5	2.8	2.3	2.1	2.8	2.0
Statistics Lab	1.5	1.3	1.3	1.3	1.6	1.2	2.6	1.5	1.2	1.5	1.4	1.3	1.4	1.2
Field Trips	1.5	1.3	1.2	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.5	1.8	1.5
Consul-tants	3.0	3.0	3.0	2.7	2.5	2.3	2.1	2.4	2.4	2.1	2.5	2.7	3.4	3.0

Without further analysis the content of Table 3 leads to only one general comment. Students saw each topic and activity as contributing in some amount to each objective. This observation strengthens the judgment that the institute program was integrated across subject matter lines. But for a more thorough understanding of the meanings conveyed by these data it is necessary to synthesize student judgments with original program plans and with other phenomena.

At the outset each program component was seen as relating

directly to a certain constellation of objectives. While student opinions generally support the initial assignment of responsibility to content areas a few differences are evident. Most noticeable among these deviations is the judgment associated with reaching the objective "to be able to select and use statistical techniques." Statistics class sessions and laboratory activities were expected to produce the most significant advances toward this objective. However, the ratings assigned to these and other program elements for Objective 7 must lead to another conclusion. The components listed as measurement and research methods were rated as contributing almost as much as the statistics component to the attainment of this objective. It may be that the most reasonable interpretation of results of student opinions relating to the topic of statistics derives from the phrasing of the objective and the nature of instruction in other topics. Perhaps key words in the statement of the objective are "select" and "use". Content of the statistics sessions focused upon the learning of somewhat discrete elements and the comprehension of relationships among these elements. In the content of measurement and research methods students encountered realistic applications of these statistics. It is probable that in these opportunities to observe applications students gained insight which shed meaning to their previous knowledge of facts.

Student views of the contribution of the statistics laboratory to learnings associated with this objective are dissappointing. Although problems constantly arose in terms of facilities, machine malfunctions, too few calculators, and equipment which did not arrive because of a late ordering date the laboratory experience was expected to contribute more significantly to the program. It is possible that their ratings reflect the hostile feelings of students rather than their true estimate of the value of this laboratory experience.

Among all the ratings given to subject areas the highest was 4.6 assigned to measurement in reaching Objective 6 which was "to be able to select from among the available standardized tests..... those most appropriate for a given school population and variable." Students indicated on a previous item their judgment that this objective was accomplished at a 4.0 level on a five point scale. Four other objectives were accomplished at an equally

high or higher level. Therefore, the meaning of the 4.6 rating must be associated with the specific contribution of the sessions on measurement to the ultimate level of accomplishment of the objective. In light of the generally high ratings assigned to measurement for all objectives the 4.6 might have been interpreted as having resulted from a personality variable.

The topic "Research Methods" was initially expected to be related to several institute objectives. An examination of the ratings assigned to this topic for each objective reveals more than a moderate contribution in every instance. Its highest ratings occurred on objectives 13., 9., 3., 1. and 12. in that order. Objective 13. related to the development of interest in research which students rated as the goal most nearly achieved. Objective 9. related to written expression of research ideas and processes; Objective 3. deals with the location of past research findings; Objective 1. encompassed the ability to analyze a problem; and Objective 12. sought to develop the ability to foresee and plan for accumulation of data. Since these objectives form the array about which the major content of this element of the program centered it is assumed that the topic served to accomplish its intended purpose.

Research evaluation and research writing had their anticipated levels of contribution to goal achievement except in one important instance. A mean rating of 2.5 given to the topic of research writing in the accomplishment of the goal related to that topic is surprising. By student opinion the topic contributed more to several somewhat alien objectives than to its most closely associated goal. Meanwhile three other topics contributed significantly to the writing objective. The only immediate explanation of this situation is that the topic and activity provided for students was neither well planned nor well executed.

Since consultants to institutes rarely direct their efforts to the achievement of specific goals it is not surprising that generally moderate to low ratings were assigned them. Probably this condition would have been less evident if the institute director had planned the consultant contribution more carefully. An explanation may be found in the fact that the director did not feel that in an institute of this kind a consultant could provide a truly

valuable assistance. It is possible that this feeling was communicated to the students and reflected in their responses.

Trainees were asked to respond to items of the questionnaire assessing their reaction to the instructional methods which were used by staff members. Table 4 contains the frequencies resulting from these items.

Table 4

Frequencies of Responses on Items Relating to Instructional Methods

Items	Categories		
	Too Frequent	About Right	Too Infrequent
Use of lecture	7	17	
Class discussion		19	5
Instructional aids		9	15
Illustrations, examples		18	6
Opportunities to question		24	

The troublesome problem of maintaining balance between lecture and class discussion is evidenced by these responses. Just less than one-third felt lecture was too frequent and almost one-fourth indicated a need for more class discussion. Since three instructors were involved it is difficult to assign a meaning to these responses. The lecture-discussion ratio varied from one instructor to another and from one topic to another. Interpretation must be limited to an acknowledgement that the

institute failed to satisfy the stated desires of a significant portion of the group in the matter of opportunities to discuss topics.

At first glance the responses to use of instructional aids represents a strong criticism of the teaching staff. In part this may be true but two factors beyond the control of anyone could have produced the feeling reflected in the response. Laboratory equipment for use in the study of probability was not available for student use because of delays in ordering. Calculators were few in number and many of them were in need of maintenance. It is true that films were used only once in the institute, but duplicated material was a frequent part of the instructional plan. This may be a justifiable criticism of the program and certainly with more time for pre-institute planning the use of instructional aids can be improved.

Trainees' estimates of their own personal development during the institute is of importance in evaluating the experience. One element of the questionnaire sought to assess these personal changes according to the self-report of participants. Table 5 shows the mean gains reported on each variable using a five point scale where a value of one is low and five is high.

Table 5

Indicated Mean Gains of Participants on Six Categories

Categories	Initial Mean Value	Final Mean Value	Gain
Knowledge of subject matter	1.8	3.8	2.0
Attitude toward research in education	3.0	4.5	1.5
Ability to conceptualize problems	2.4	3.8	1.4
Ability to evaluate research	2.1	3.8	1.7
Ability to design and carry out research	1.5	3.7	2.2
Ability to communicate research matters to others	1.7	3.8	2.1

Significant personal gains were indicated on each of the six variables. While attitude toward research in education reached the highest mean level it also began at the highest level. Largest gains were noted on research ability, communication of research matters, and knowledge of the subject matter of the institute. Lowest mean gain was observed in the ability to conceptualize problems in education. This result is in support of comments made earlier in reference to the trainees' handling of the problem component of a research effort.

Reactions to other items involving personal characteristics provide important information. Eleven of the twenty-four indicated that their degree of personal involvement was more than ever in a

course in the past. Seven were involved at their typical level while five indicated less involvement than ordinary. Three were distracted from institute matters by other concerns; an automobile accident with prolonged minor injury; an immient surgical appointment; and an illness. Four participants indicated some lack of interest because the material was not suited to their personal needs. The remaining participants did not respond to the item.

Staff and Teaching Assignments

Without question the single most important determiner of learning in an institute as well as any other teaching-learning situation is the quality of the teaching staff. This institute, while not blessed with a staff having a significant national reputation in educational research, provided an instructional experience of quality for this unique student group. Participants were free with their discussion of instructional characteristics of individual staff members and naturally these comments were passed along by students, professors and administrators not associated with the institute. During the institute period and immediately thereafter accounts of student comment flowed constantly to the ear of the institute director. Not one such comment was less than complimentary. Without solicitation letters have come from institute participants since the closing day expressing high regard for the instruction which they received this summer.

Qualities which contributed to an optimum instructional experience were patient understanding, knowledge of subject matter, verbal facility, cooperative spirit, unsellfish sharing of time, enthusiasm shown in contact with students, and a strong desire to provide a learning experience suitable to individual student levels of readiness and need.

Staff members and their teaching assignments:

Ivan L. Russell, Ph. D., Institute Director
Presented topics of research methods, experimental design, evaluation of research, and research writing.

James Eaves, Ph. D., Professor of Mathematics
Presented topics in statistics and conducted the laboratory

John Anglin, Ed. D., Assistant Professor of Education
Presented topics in measurement

Mr. Robert Brown, M. A. in Mathematics and Computer Science
Statistics and Laboratory Assistant

Malcolm Provus, Ph. D., Director of Research
Pittsburgh City Schools
Pittsburgh, Pennsylvania
Full-time with the institute during the period July 20 to August 2. Assisted in all elements of program presented during that period.

Consultants to the institute:

Dr. J. Thomas Hastings, Director
Center for Instructional Research and Curriculum Evaluation
University of Illinois
Urbana, Illinois

Dr. Robert M. Rippey, Associate Director
Center for the Cooperative Study of Instruction
University of Chicago
Chicago, Illinois

The number of institute staff members seems reasonable when only student-teacher ratio (approximately 10:1) is considered. However, when the array of topics covered and the daily class time are taken into account it becomes evident that additional teaching staff were needed. With the initial approval of the institute proposal there was a strong suggestion that a director of research from a large urban school system be employed as a faculty member. A thorough search for such a person available for the entire eight week period was futile. The best arrangement which could be substituted for this suggestion was to employ Dr. Provus of the Pittsburgh Public Schools for a short period of time. In summary, while the staff was marginally adequate in terms of number their enthusiasm and unselfish effort produced an effective instructional situation.

Selection and Characteristics of Trainees

On April 20, 1966 a total of 940 notices of the institute were mailed to schools in Kentucky, Indiana, Ohio, Illinois, Missouri, Tennessee, Virginia, and West Virginia. Copies were sent to the Superintendent of Public Instruction in each of these states. The announcement and the letter of transmittal are shown in Appendix C. As a result of this publicity 124 inquiries were received and applications mailed during the period April 23 to May 20, 1966. Of these applications 52 were returned in completed form. The following criteria were applied to select the trainees:

1. A baccalaureate degree and two years of teaching or administrative experience.

2. Responsibility in the research program for a local school system.

3. If graduate credit was sought it was necessary to be eligible for graduate school admission which requires:

   a. Graduation from an accredited college

   b. An overall undergraduate grade point average of 2.5 on a 4.0 scale.

Each of the candidates finally selected returned letter or telegrams indicating their intent to attend the institute. However, eight failed to appear on June 13 for the beginning of the program. Only two of the eight returned correspondence indicating their inability to attend. These two were replaced by lesser qualified candidates but there was not time to recruit and select replacements for the other six positions.

The participant group was representative of a wide geographic region in the State of Kentucky. One trainee came from southwestern Illinois (Belleville). School systems large, medium and small were represented. While diversity of location and background was characteristic of the group they brought with them many communalities. They were capable in the basic and daily

routines of public education, experienced in the problems of teachers and administrators, and directed by a desire to seek new answers to old problems. Although a tendency to think in the stereotyped cliches was evident they quickly moved toward more open consideration of matters. Perhaps the best description would mention their earnestness of purpose, willingness to work, and tolerance for frustration. In brief, the problems of this institute cannot be associated with the characteristics of its participants. Generally, the group was able to meet the demands of the program and to develop a remarkable degree of capability in educational research as a result of the program and their individual efforts.

Organization

Daily schedules, classroom facilities and other organizational matters have been discussed in detail under other topics. But an evaluation of the length of the program remains of some concern. Unquestionably the period of eight weeks allowed time for only an introduction to the problems and methods of educational research. And there is no question that the accomplishments of this institute were limited to introductory levels of personal achievement. Perhaps the real question is "Can persons with a minimum preparation be given a worthwhile program in an institute of eight weeks?"

While an answer based upon objective data must await the outcomes of personal efforts by the institute participants a subjective opinion can be stated. Despite a very ambitious effort to present a wide array of topics the staff has expressed the opinion that the experience was worthwhile and should be repeated with refinements. Certainly the short institute is a better setting for research training than the traditional three or four scattered courses with relatively unrelated content.

EVALUATION SUMMARY AND CONCLUSIONS

Although the label "Successful" is tentatively given to this institute program there are several details and circumstances which were troublesome and require improvements. Highest in the order of priority for change is the content organization of the program. Assuming a trainee group with similar characteristics a future program should contain these elements:

1. Much more time should be given to conceptualizing research problems and analyzing them. It is not reasonable to assume that trainees will be able immediately to select the significant elements of a problem situation and to view these elements as variables in a research endeavor. Becoming analytic in approaching a problem is not easy for persons who have not been prepared to view problems in this manner. Undergraduate education, indeed general public education, has not encouraged and stimulated the learner toward inquiry. Years of experience in passive learning and careless acceptance of ideas do not prepare the individual for the kind of thought processes required of a researcher. Despite some careful attention to the problem component this institute was not successful in preparing these trainees in problem development.

2. It would be wise to withhold the introduction to statistics for the first two weeks and to devote this time to concept building. Probably in the first two weeks a group could be prepared to receive instruction in statistics by helping them to see the need for certain data treatments.

3. More time should be given to discussing research methods and experimental design. Trainees should have frequent experiences in the selection of experimental designs for selected problems in education. Opportunities to evaluate the suitability of a design for a particular study would provide the familiarity and insight necessary for learning.

4. One consultant who would bring to the group a fresh view of ongoing educational research would be important to the program of an institute of this type. His visit should be late enough in the program to allow the participants to develop the language and

basic knowledge to insure their ability to interact with him.

5. Statistical laboratory time should be reduced by about one-half.

6. A one-half time person should be added to the teaching staff.

PROGRAM REPORTS

Many of the facts shown below are pointed out in the context of the evaluation. For purposes of immediate reference these items are repeated in summary form.

1. Publicity

No public notice of the institute was made because of factors mentioned earlier in this report. Publicity was limited to the letter of announcement shown in Appendix C and to oral communication.

2. Application Summary

a. Approximate number of inquiries from prospective trainees	124
b. Number of completed applications received	52
c. Number of first rank applications	33
d. Applicants offered admission	35

3. Trainee Summary

a. Number of trainees initially accepted in the program	30
Number of trainees enrolled at the beginning	24

Number of trainees who completed the program 24

b. Categorization of trainees

1). Elementary or secondary school teachers 4

2). Local public school administrators and/or supervisors..... 20

4. Program Director's Attendance

a. Number of instructional days for the program (July 4 excluded)..... 39

b. Percent of days the director was present 100%

FINANCIAL SUMMARY
(tentative)

		Budgeted	Committed and Expended
1.	Trainee Support		
	a. Stipends	$18,000.00	$14,400.00
	b. Dependency allowance	9,000.00	6,720.00
	c. Travel	720.00	187.19
	Total	$27,720.00	$21,307.19
2.	Direct Costs		
	a. Personnel	$16,469.00	$12,377.67
	b. Supplies	500.00	493.21
	c. Equipment	100.00	28.00
	d. Travel	800.00	587.25
	e. Other	780.00	583.00
	Total	$18,649.00	$14,069.13
3.	Indirect Costs	$ 3,710.00	$ 2,814.00
	Total	$50.079.00	$38,190.32

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APPENDIX A-1

Statistics

Outline of Course Content

I. Descriptive Statistics
   - A. Elementary derivations
   - B. Frequency distributions - emphasis on characteristics and the introduction of grouping errors
   - C. Central tendencies
   - D. Variability - emphasis on development, limitations, and characteristics
   - E. The Normal Curve - its predetermined characteristics, an outline of the mathematical development, its use in predictions, and the testing of hypotheses
   - F. Derived scores - their purpose and use
   - G. Regression and prediction -
     1. Theory of least squares
     2. Non-linear trends
     3. Concrete and theoretical illustrations

II. Probability
   - A. Finite sample spaces
   - B. Combinations, approximations
   - C. Conditional probability
   - D. Independent events
   - E. Free schematics
   - F. Binomial distribution
   - G. Geometric treatments
   - H. Finite Markov chains
   - I. Bayes theorem

III. Statistical Inference
   - A. Sampling distributions
   - B. Hypothesis testing
   - C. Student's T distribution
   - D. Estimation
   - E. Chi Square distribution
   - F. Analysis of variance, introduction only

APPENDIX A-2

Measurement

Outline of Course Content

I. Development of measurement in education

II. Characteristics of acceptable measurement
  A. Validity
    1. Kinds of validity
    2. Characteristics of a criterion
    3. Investigating the validity of a measure

  B. Reliability
    1. Types of reliability
    2. Meanings imparted by the type of reliability information
    3. Investigating the reliability of a measure

  C. Practicality

III. Norms... Purposes and characteristics
  A. Age norms
  B. Grade norms
  C. Percentiles
  D. Standard scores
  E. Normalized standard scores

IV. Constructing test items and questionnaires
  A. Taxonomy of educational objectives
  B. Types and levels of items
  C. Item writing
  D. Analysis of tests and items
  E. Characteristics important to a questionnaire

V. School achievement measures
  A. Types of tests

B. Interpretation of test results
C. Multi-test interpretation
D. Recent trends

VI. Measurement of intelligence
A. Nature of intelligence...the construct
B. Individual intelligence tests
C. Group tests
D. Omnibus tests vs. factor tests
E. Interpretation of scores
F. Intelligence test scores in research

VII. Methods of personality appraisal
A. Self report
B. Opinion of others
C. Direct measures
D. Indirect measures

VIII. School-wide testing program
A. Selection of tests
B. Interpreting and using test scores

IX. Measuring teacher behavior
A. General attempts, affective and cognitive
B. Interaction analysis

X. Measurement by Q-sort
A. Characteristics of the technique
B. Applications

XI. Measurement by the semantic differential
A. The technique
B. Applications

APPENDIX A-3

Research Methods

Outline of Course Content

I. The science of research methodology

II. Research in education
   - A. Its history
   - B. Current emphasis
   - C. In local schools

III. Conceptualizing education as a research base
   - A. Overall school program and purposes
   - B. Elements of school -- a model for research
   - C. Variables relating to each element of the model
   - D. Identifying problems in todays schools

IV. The problem component of a research study
   - A. Analysis of the problem
     1. Identifying variables within the problem
     2. Tracing antecedents of the problem
   - B. Establishing limits for the study
   - C. Significance of the problem
   - D. Recognition of goals to be achieved
   - E. Defining terms and relationships

V. Developing hypotheses
   - A. Reasons for hypotheses
   - B. Types of hypotheses
   - C. How do you develop an hypothesis
   - D. Practice in developing hypotheses

VI. Selecting a research model or generating one
   - A. Characteristics of a model
   - B. Usefulness of the model

VII. Selecting a research strategy
- A. Historical research
- B. Descriptive research
  1. Surveys
  2. Job analysis
  3. Public opinion research
  4. Community analysis
- C. Interrealtionship studies
  1. The case study
  2. Causal-comparative studies
  3. Correlational studies
- D. Developmental studies
  1. Growth studies
  2. Trend studies
- E. Experimental research
  1. Nature and control
  2. Methods of control
  3. Factors to be controlled
  4. Design with minimum control
     One-group pretest-posttest design
  5. Designs with rigorous control
     a). Randomized control-group pretest-posttest design
     b). Randomized Soloman four-group design
     c). Randomized control group posttest only design
     d). Factorial designs
  6. Designs with partial control
     a). Nonrandomized control-group pretest-posttest design
     b). Counterbalanced design
     c). One-group time-series design
     d). Control-group time-series design

APPENDIX A-4

Evaluation of Research

Outline of Content

I. Why evaluate research?

II. Criteria for the evaluation of a research effort
   - A. The problem
     1. Clearly defined?
     2. Was a verifiable hypothesis formulated?
     3. Was the hypothesis logically developed from some theory?
   - B. The design
     1. Suitability of the statistical design
     2. Clear statement of the population characteristics
     3. Sampling method
     4. Characteristics of the control group
     5. Random assignment of treatments
     6. Statistical inference sound
   - C. The procedure
     1. Adequate description of the treatment and methods
     2. Controls adequate?
     3. Appropriate measurement devices
   - D. The analysis
     1. Were all significant elements of the situation analyzed?
     2. Were relationships investigated?
     3. Were analysis techniques appropriate for the sample, measures, and population?
   - E. The interpretation
     1. Were conclusions logically drawn from the findings?
     2. Generalizations adequately related to limitations of the study?

APPENDIX A-5

Research Writing

Outline of Content

I. Guidelines for research writing
   - A. A format selected, organization
   - B. Appropriate language for the topic and the reader
   - C. Clarity of expression necessary
   - D. Avoidance of extraneous material
   - E. Grammar, punctuation, spelling
   - F. Appropriate handling of reference material
   - G. Tables, graphs and figures
   - H. Interpretation of tables, etc.

II. A writing experience

APPENDIX B

QUESTIONNAIRE
RESEARCH TRAINING INSTITUTE
SUMMER, 1966

Your responses to these items will be used in the process of evaluation of the Research Training Institute with which you have been associated. Your candid observations as you record them here can be of real value in the improvement of future efforts to provide research training. Please be as specific as the format of this instrument will allow. Do not in any way identify the responses as your product.

I. General Elements of the Institute:

A. Administration

Several administrative problems were encountered in the staging of this Institute. Please indicate the direction and degree of influence each of these problems may have exercised on the outcomes of the Institute:

	Problem	Degree of Influence No Influence — Moderate Influence — Very strong Influence
1.	Late notification of participants.	1 2 3 4 5
2.	Less than the full number of qualified participants.	1 2 3 4 5
3.	Obtaining admission to graduate school.	1 2 3 4 5
4.	Shifting from room to room.	1 2 3 4 5
5.	Finding space for small group sessions.	1 2 3 4 5
6.	Delays in stipend check.	1 2 3 4 5
7.	Other (Specify)___ _____ _____ _____	1 2 3 4 5
	(State any other administrative problems which you consider significant)	

Allocation of time for various elements of the program was a necessary part of the structure of the Institute. Please indicate your opinion of the amount of time devoted to each of the content areas and activities. If you feel the time allotted was too short place a check in the column "Increased" and a check in the column headed by the percents: 25%, 50%, 75%, 100%. If you feel the time allotted was too long check the column "Decreased" and indicate the percent by which it should be decreased. If you feel the time allotment was "appropriate" check that column and leave the percent columns blank.

Topic or Activity	Time Allottment Should be Increased	Appropriate	Decreased	Percents 25%	50%	75%	100%
Statistics							
Measurement							
Research Design							
Methodology							
Research Writing							
Field Trips							
Consultants							
Laboratory							
Small groups							
Analysis of Published Research							
Other (Specify)							

B. Content of the Program

The content of the program was guided by fourteen objectives stated in behavioral terms. Referring to the attached page for statements of these objectives make your evaluation of the content in two actions:

1. On the line to the left of the page place a check on the scale indicating the degree to which the objective has been reached.

2. On the scale to the right of the page place beneath each content area a numeral selected from the following list:

   1. _____ contributed very little to the objective
   2. _____ significant but minor contribution to the objective
   3. _____ moderate contribution to the objective
   4. _____ a strong contribution to the objective
   5. _____ was the major contribution to the objective

Unachieved		Moderate		Fully Achieved	Objective	Statistics	Measurement	Research Design	Research Methods	Research Writing	Statistics - Lab	Field Trips	Consultants	Research Evaluation
1	2	3	4	5	1									
1	2	3	4	5	2									
1	2	3	4	5	3									
1	2	3	4	5	4									
1	2	3	4	5	5									
1	2	3	4	5	6									
1	2	3	4	5	7									
1	2	3	4	5	8									
1	2	3	4	5	9									
1	2	3	4	5	10									
1	2	3	4	5	11									
1	2	3	4	5	12									
1	2	3	4	5	13									
1	2	3	4	5	14									

Instructional Methods

Please indicate with a check your reaction to each of the following items:

1. The use of lecture as a teaching method was

too frequently____
about right_____
too infrequently___

2. Class discussion was used as a teaching technique
   too frequently_____
   about right_____
   too infrequently___

3. Use of teaching materials such as films, devices, duplicated materials and machines was
   too extensive_____
   about right_____
   insufficient_____

4. Instructors uses of practical applications, illustrations, examples, analogies, and comparisons were
   too extensive_____
   about right_____
   insufficient_____

5. Opportunities to ask questions and to receive individual help were
   abundant_____
   adequate_____
   infrequent_____

Personal Involvement

Indicate your degree of personal involvement and growth by placing check marks in the appropriate spaces.

1. Degree of personal involvement in the activities of the Institute:
   _____more than I have been involved in a course in the past
   _____about like my typical degree of involvement in courses
   _____less than my typical degree of involvement in courses

2. My personal involvement would have been increased if
   _____a number of other concerns had not interfered
   _____the material had been more directly suited to my needs
   _____the material had been more interesting presented
   _____the material had been less difficult for me
   _____the material had been more challenging
   _____other (specify)_____
   _____

3. Please indicate your personal development during the Institute by placing a circle on the scales to represent your position at the beginning and an "x" to represent your present position.

A. Knowledge of subject matter of the Institute

Low	Below Average	Average	Above Average	High
1	2	3	4	5

B. Attitude toward research in education

Strong Negative		Accepting		Strong Positive
1	2	3	4	5

C. Ability to conceptualize problems in education

Low	Below Average	Average	Above Average	High
1	2	3	4	5

D. Ability to evaluate research of others

Low	Below Average	Average	Above Average	High
1	2	3	4	5

E. Ability to design and carry out research in education

Low	Below Average	Average	Above Average	High
1	2	3	4	5

F. Ability to communicate research matters to others

Low	Below Average	Average	Above Average	High
1	2	3	4	5

What is your chief criticism of the Research Training Institute?

_____

_____

_____

_____

What, in your estimation, is the most favorable element of the institute?

_____

_____

_____

_____

What recommendation would you make for changes in a future Institute designed for the same objectives as this one?

_____

_____

_____

_____

_____

_____

APPENDIX C-1

UNIVERSITY OF KENTUCKY

Lexington, Kentucky 40506

College of Education April 20, 1966

Dear Colleague

Enclosed are copies of the notice of a Research Training Institute to be offered during the regular summer session at the University of Kentucky. This certainly is late to be announcing such an opportunity, but an unfortunate delay at the federal level has caused the problem.

This Institute should prove to be highly valuable to persons who have research responsibilities or who might assume them later. We request your help in getting this information to the appropriate persons through direct contact from you or posting in the right places.

Your cooperation is appreciated.

Sincerely

Ivan L. Russell, Director
Research Training Institute

mw

Enclosure

APPENDIX C-2

IMPORTANT

NOTICE! NOTICE! NOTICE! NOTICE!

The
College of Education
University of Kentucky

will offer a Research Training Institute

for

Persons who direct research and development programs in local school systems or state departments of public instruction

Dates: June 13, 1966, to August 5, 1966 (8 weeks)

General Information

This is a program designed as initial training of persons designated as responsible for the development of Title I proposals, research projects, and developmental activities for local schools. Content of the Institute will include: research process, evaluation of research, research writing, statistical methods, measurement, and research design. The Institute is supported by the United States Office of Education under Title IV of the Elementary and Secondary School Act of 1965. The deadline for applications is May 12, 1966.

Stipends of $75 per week and $15 per week for each dependent will be paid to each participant. Travel one-way at the rate of 8 cents per mile to the Institute from the participant's home will be paid.

Graduate credit of nine-semester hours will be granted to those participants who are admitted to the Graduate School at

For further information and/or application blanks write immediately to:

Dr. Ivan L. Russell, College of Education
University of Kentucky, Lexington, Kentucky 40506

APPENDIX C-3

RESEARCH TRAINING INSTITUTE

University of Kentucky
Lexington, Kentucky

The Research Training Institute to be conducted June 13, 1966, to August 5, 1966, at the University of Kentucky is directed to the needs of local school system researchers. While the content will be concentrated upon statistics, measurement and research design, a very practical approach to these topics will be evident. Lecture, discussion, laboratory, field trips, and consultants will be involved in the eight-week institute.

Requirements for Participation

1. A baccalaureate degree and two years of teaching or administrative experience.

2. Responsibility in the research program of a local school system.

3. If graduate credit is sought, it is necessary to be admitted to the Graduate School of the University which requires:

   (a) Graduate from an accredited college
   (b) An overall 2.5 grade point average on a 4.0 point scale.

Final selection of candidates will be made by the Director of the Institute.

Notification should be expected by May 20, 1966.

Courses for which credit may be sought are (nine hours from among):

Education 522	Tests and Measurements	3 hours
Education 656	Methodology of Educational Research	3 hours
Education 657	Educational Statistics	3 hours
Education 658	Problems in Educational Psychology	3 hours

Participants must make their own housing arrangements. Stipends will be paid at the rate of $75 per week and $15 per week for each dependent who accompanies the participant to Lexington. Travel will be paid at the rate of 8 cents per mile for one way from the place of residence to Lexington, Kentucky.

Complete the enclosed forms and return them immediately to:

Dr. Ivan L. Russell, Director
Research Training Institute
111 Dickey Hall
College of Education
University of Kentucky
Lexington, Kentucky 40506

APPENDIX C-4

RESEARCH TRAINING INSTITUTE

College of Education
University of Kentucky
Lexington, Kentucky 40506

APPLICATION

Name_____Sex: M F Age_____

Address_____Telephone_____

_____

Employer_____Telephone_____

_____

List Dependents

Name	Age

Education

Institution	Degree	Field	Date

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

Experience (last two positions only)

Employer	Duties
_____	_____
_____	_____

Please place a check mark before each of the following courses if you have taken such a course in your graduate training.

_____Tests and Measurements
_____Introductory Statistics
_____Research Methods in Education

List other research training courses you have taken.

Will you register for course credit if you are admitted to the Institute? _____Yes _____No

Briefly describe your interest in a research training institute.

_____ _____
Date Signature